WATER POWER

FROM SMALL STREAMS

with a

BROOK WATER WHEEL

for ELECTRIC LIGHTS *and* POWER, PUMPING WATER, *and* DRIVING SMALL MACHINERY

CATALOG NO. W-3

RODNEY HUNT

PRICE 10 CENTS

FAMOUS *Appalachian Club* GENERATES ALL OF ITS ELECTRICITY *with* BROOK WATER WHEELS *and* *SAVES MONEY!*

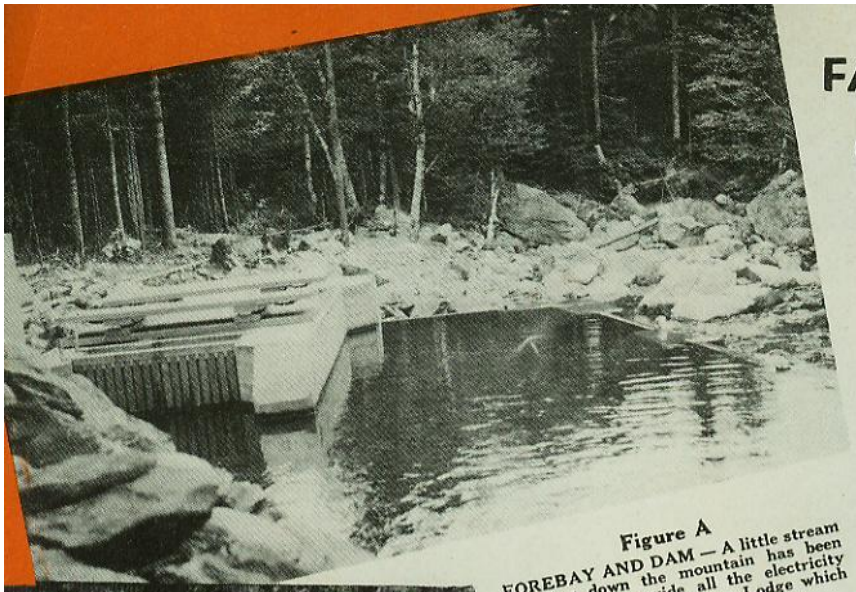


Figure A
FOREBAY AND DAM — A little stream tumbling down the mountain has been harnessed to provide all the electricity needed for the Appalachian Lodge which has accommodations for 75 guests.

The Appalachian Mountain Club at Pinkham's Notch (Gorham, N. H.) has harnessed a typical mountain stream with two Brook Water Wheels and now gets all the electricity it needs at practically no cost!

Located far from power lines, the Club thus provides lights and refrigeration for thousands of summer and winter guests. A supply pipe from a small dam brings the water from the stream to a pair of Brook Water Wheels which generate 4 to 8 kilowatts. The plant requires no fuel, no lubrication, no attention, no expense — even in sub-zero weather. It runs as quietly as an electric motor.

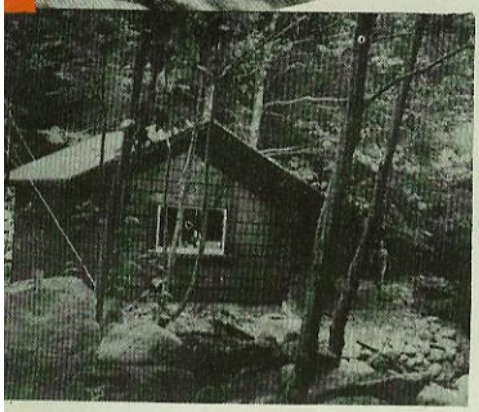


Figure B
THE WHEEL-HOUSE: The wheel-house in its sylvan setting is a source of constant interest to guests who are amazed at the ease with which falling water can be put to work.

Owners Enthusiastic — Save $600 Per Year

Here's what Joe Dodge, Hut Manager at the Appalachian Club, writes: "We are very proud of our Brook Water Wheel. It is doing an admirable job and we are well pleased with the performance. For three years previous to our installation of the hydro unit, the cost of power needed at this camp for lights and operation of mechanical units ran very close to $600.00 per year (using two gasoline electric units). With the Brook Water Wheels, our cost of maintenance to date has been practically nothing, except for a little time spent cleaning the racks once in a while, nowhere near the time we used to spend maintaining the gas electric units. We haven't used a bit of oil in the generator since it was started up on the first of January, 1939. We expect to write off our total investment (for dam, penstock, power house, wheels, generator, and line distribution) in six to eight years."

VISIT OUR SMALL WATER WHEEL LABORATORY

We wish it were possible for everyone who has a brook in their "back yard" to see one of these Brook Water Wheels in operation and see how simple and quiet and efficient they are.

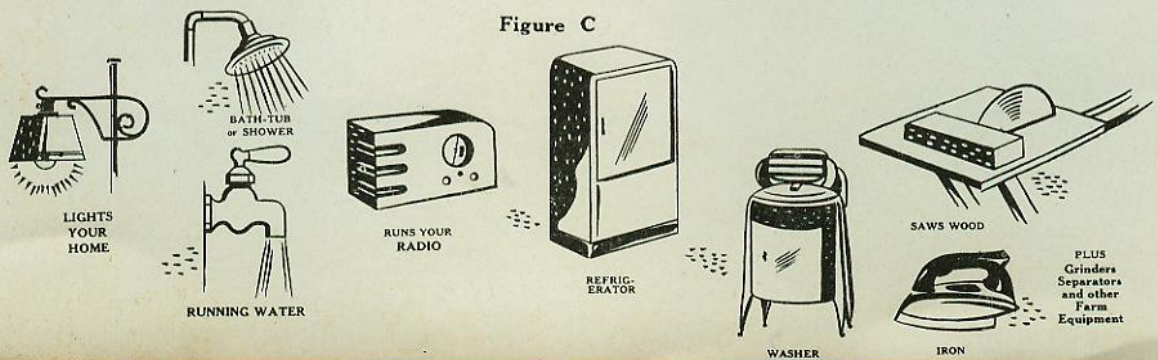
We cordially invite all those who can, to visit our Small Water Wheel Laboratory at Valley Mills Lodge (near our plant in Orange, Mass.) on Highway Route 78.

There you can see several of these units in operation and see how we are continually making tests under all kinds of conditions. This laboratory is so modern and complete that several leading colleges and universities have installed our testing equipment and water wheels in their own Hydraulic Laboratories.

ENJOY *these* ELECTRIC CONVENIENCES

With a Brook Hydro-Electric Plant you can enjoy all the comforts and conveniences of modern electric appliances *without* having to worry about a monthly bill from the power company. Once installed, one of these plants costs you practically nothing to operate year in and year out. Below we show a few of the home comforts that Brook power will bring. In addition, it will operate many farm appliances, and supply power for your workshop.

Figure C



NO "METERS" TO RUN UP MONTHLY BILLS

★

LEAVE ON THE LIGHTS — DOESN'T COST A CENT

★

PUT WATER TO WORK — IT'S WAITING TO BE HARNESSED

How to get POWER

FROM SMALL STREAMS WITH A

Brook Water Wheel

There are hundreds of small streams that are waiting to be harnessed to provide light and power. Actually millions of horse power are now going to waste — a great untapped source of energy.

The new Brook Water Wheel enables such streams to be put to work. Developed after years of research it applies on a small scale the same principles and type of equipment used in large hydro-electric installations.

What You Can Do with a Brook Water Wheel

The farmer or the owner of a country home with a Brook Water Wheel can generate electricity to provide light, to run small motors, pumps, radios, fans, flat irons and other electric appliances. He can use the electricity to heat water for domestic use — and even heat rooms at no added cost if he has surplus power. He can have a bathroom with running water, an irrigation system and ornamental fountains on his lawn. One of our customers uses the power from his Brook Water Wheel to run a profitable "hobby shop," complete with wood and metal working machinery.

No Monthly "Light Bills"

You save money by putting water to work because once you have installed your own little hydro-electric plant you have practically no further expense — and no monthly "lighting" bills to pay. Your Brook Water Wheel uses no fuel, no lubrication, needs little attention, and has practically no depreciation from wear.

The Safest Kind of Power There Is

A Brook Water Wheel eliminates the noxious fumes, the frequent dangerous "cranking" and the constant attention that gas-operated generating units demand. It also eliminates the disturbing day and night noise and vibration that goes with gasoline generators.

And It's Fun

Besides the savings, safety and conveniences which a Brook Water Wheel can bring to your home — there is fun and satisfaction in operating your own water power development, in harnessing water and putting it to work. If you own a brook, you own a source of power that has benefited mankind through the ages. Why waste it? A water power plant will add many times more to the "selling value" of your property than its assessed value. Your guests and your children will find it a central point of interest. And finally, you will enjoy being "independent."

How Much Power Do You Need?

To find your power needs, just list the electric lights and appliances you will want to operate as shown in Fig. 1 below. Fill in the wattages (you can find these in any catalog of electric appliances) and the number of hours you expect to use them per day. Also estimate the watts needed for the highest load you will have AT ANY ONE TIME. The table on page 5 will show the horse power and size of stream needed to produce these wattages with a Brook Water Wheel.

For lighting (200 to 1,000 watts), Radio (50 to 100 watts), Refrigerator (200 watts), Water Pump for Flush Toilet and Sink (200 watts), Washing Machine (200 watts), Flat Iron (600 watts), etc.

(Fill In) APPLIANCES	WATTS	ESTIMATED NO. HOURS USE PER DAY
(a) TOTALS	Watts	Hrs.

(b) Total Estimated Watt-hours Needed per Day (Multiply Totals above) .....Watt-hours

(c) Total Estimated Watts Needed at One Time (Load).....Watts

See Table (Fig. 7 on page 5) for SIZE OF STREAM NEEDED TO MEET YOUR POWER NEEDS.

FIGURE 1

Copyright, 1940
BROOK WATER WHEEL CO.
Div. of Rodney Hunt Machine Co.
Orange, Massachusetts, U.S.A.

How to Measure
FOR FLOW AND FALL

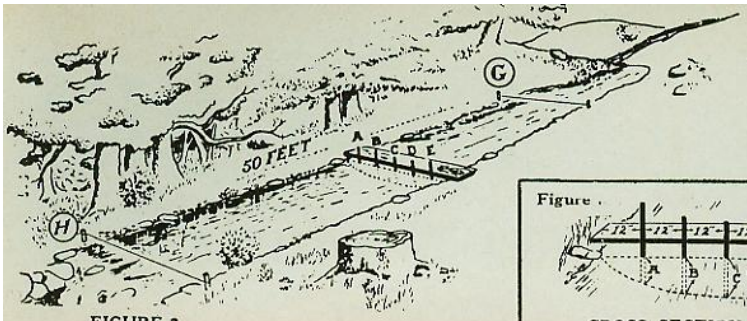


FIGURE 2

Figure .

CROSS SECTION OF STREAM

FINDING FLOW - BY FLOAT METHOD

What makes a worth-while "power site"?

The first thing is to find out how much water you have available. In general, it can be said that if there is enough water flowing at all times in your stream to fill a 6 inch pipe, and if the level of this water drops 10 feet or more (the fall or head), you have available a power site that is worth developing. For a brook of this size will generate enough power to provide lights for the average home and run small appliances and motors part of the time.

So let's measure your brook and find out its power capacity. There are two things we need to know — (1) the normal average amount of water that is flowing in the stream in terms of cu. ft. per minute, and (2) how much the water drops — the number of feet of "head" or "fall."

I. Finding the flow: WEIR METHOD

Because the volume of water varies with wet and dry seasons, the brook should be measured, if possible, during the normal period of flow. There are two ways to do this measuring. The WEIR method is easy and accurate for small streams. A "Weir" is simply a temporary dam of planks with a rectangular opening for all of the water in the brook to flow through. See Fig. 4. Be sure that the bottom of this opening is perfectly horizontal and that there is a smooth flow of water through the opening. Then drive a stake into the stream a few feet above weir until its top is level with the bottom of the weir opening. Measure the depth of the water at this point. (See Fig. 5). The Weir chart (Figure 6) will show how many cu. ft. per minute of water you have for each inch of weir for this depth. Multiply by width of weir in inches to get total flow in cu. ft. per minute.

II. Finding the flow: FLOAT METHOD

A simpler but less accurate way to measure the FLOW of your stream is the FLOAT method — See Figs. 2 and 3. Place a plank across stream and measure the depth in inches at one foot intervals from bank to bank. Find the *average depth* by dividing the total of these measurements by the number of measurements taken. Convert into feet by dividing by 12. Now measure *width* of stream.

Now find the *speed* of the stream by timing a chip floating downstream for 50 feet. Take several timings and find the average speed in seconds. Now divide this figure into 2400 and you will have the average *velocity* in feet per minute. Now multiply —

Av. depth x width x velocity = Flow.

FINDING FLOW - BY WEIR METHOD

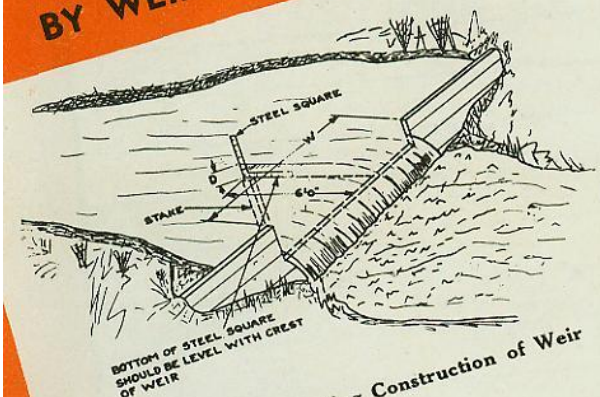


Figure 4 — Showing Construction of Weir

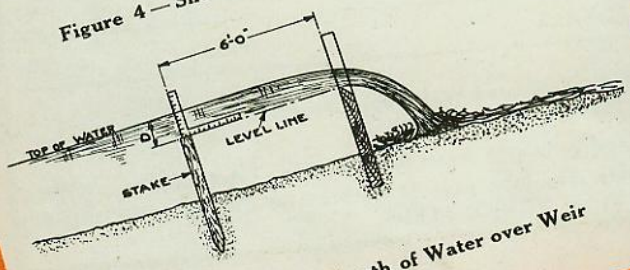
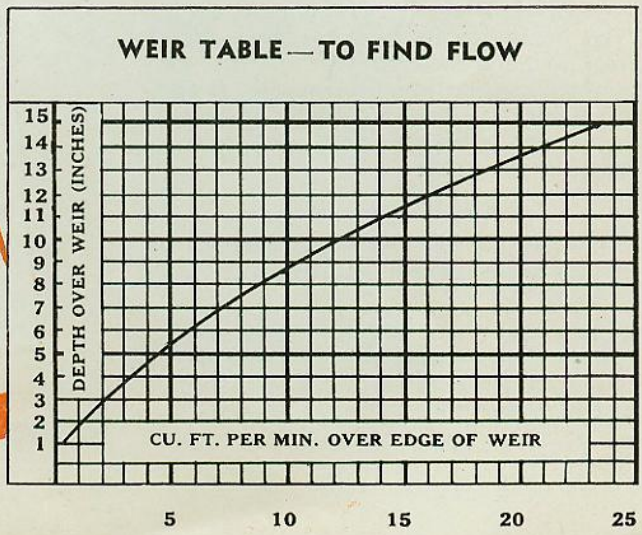


Figure 5 — Measuring Depth of Water over Weir

FIGURE 6



Your Stream
TO FIND CAPACITY

III. FINDING THE "FALL" or "HEAD":

This means finding the vertical drop from the highest water point (such as the top of dam) to the lowest. See Figures 8 and 9. In the case of a brook you would choose the two points where you get the greatest drop in the shortest distance. Method: Start at low end of stream. With stakes or stones level up a 10-ft. straight-edge at the water's edge, parallel with bank and with upstream end of straight-edge flush with surface of water. Then measure distance from lower end of levelled straight-edge to water — this will give you the fall for that ten feet of stream. Repeat process going upstream until you have found the total fall for the distance measured.

You have now found the FLOW of your stream in terms of cu. ft. per minute and also its FALL in feet. With this information you can determine fairly accurately how much horse power and electricity you can develop with a Brook Water Wheel. See table on this page — Figure 7.

If You Have Enough Water —

If you find that your flow is 2 or 3 times the amount called for in the table, you can develop 2 or 3 times the power by adding additional water wheel units, connected to a common generator. In other words, if you have a fall of 15 feet and a flow of 140 or more cu. ft. per minute — you can develop 3 horse power instead of 1½ as shown on the table. The arrangement of 2 or 3 of these units in tandem has important advantages over the installation of a larger wheel. It's less expensive, for one thing. And it's more efficient, because in dry seasons you can use only one of the units at full capacity rather than being compelled to operate a larger turbine at half capacity with consequent loss of efficiency.

Figure 7

USE THIS TAB

TO FIND POWER
Which Your Stream Will Develop with a No. 440 Brook Water Wheel

(Approximate because of varying installation conditions)

If Your HEAD (Fall) IS FEET Drop	You'll Need a FLOW of WATER cu. ft. per min.†	Which will give a Turbine Speed of R.P.M.	To produce this amount of POWER H.P.	And this amount of ELEC-TRICITY Watts*
5 ft.	41.1	990	1/4	130
7 ft.	48.6	1170	1/2	260
10 ft.	58.3	1390	4/5	415
12 ft.	63.0	1530	1-1/10	575
15 ft.	69.6	1712	1-1/2	785
17 ft.	74.5	1822	1-8/10	940
20 ft.	79.5	1977	2-1/3	1200
22 ft.	83.3	2075	2-7/10	1400
25 ft.	90.0	2210	3-1/4	1700
27 ft.	93.48	2300	3-2/3	1880
30 ft.	98.4	2412	4-1/4	2220
35 ft.	105.6	2620	5-1/2	2870
40 ft.	113.10	2800	6-2/3	3450
50 ft.	127.5	3130	9-1/4	4830
60 ft.	139.2	3424	12	6266

* Based on assumed generator efficiency of 70% for small DC Generators Reduce 10-15% for lower efficiency of small AC Generators

† There are 7½ gallons in a cubic foot.

NOTE:

You can Double or Triple these H.P. and Watt Figures by installing 2 or 3 No. 440 Brook Water Wheels. In this case, you will need 2 or 3 times as much flow as given in the table. See page 10 for settings with 2 and 3 units.

A pond storage will provide for a heavy load a few hours daily. If no pond is available, a storage battery will serve the same purpose.

MEASURING THE "HEAD" OR "FALL" OF STREAM

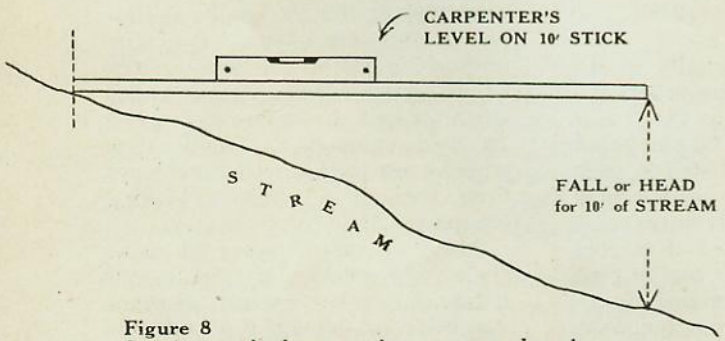


Figure 8
Starting at the lowest point, measure drop in 10 ft. sections to highest point (dam). The total will be the "head" or fall of your stream.

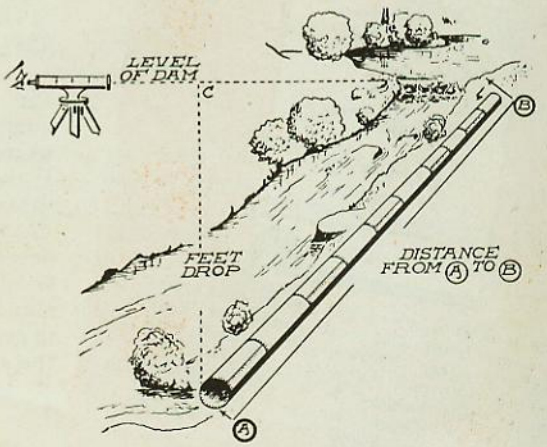
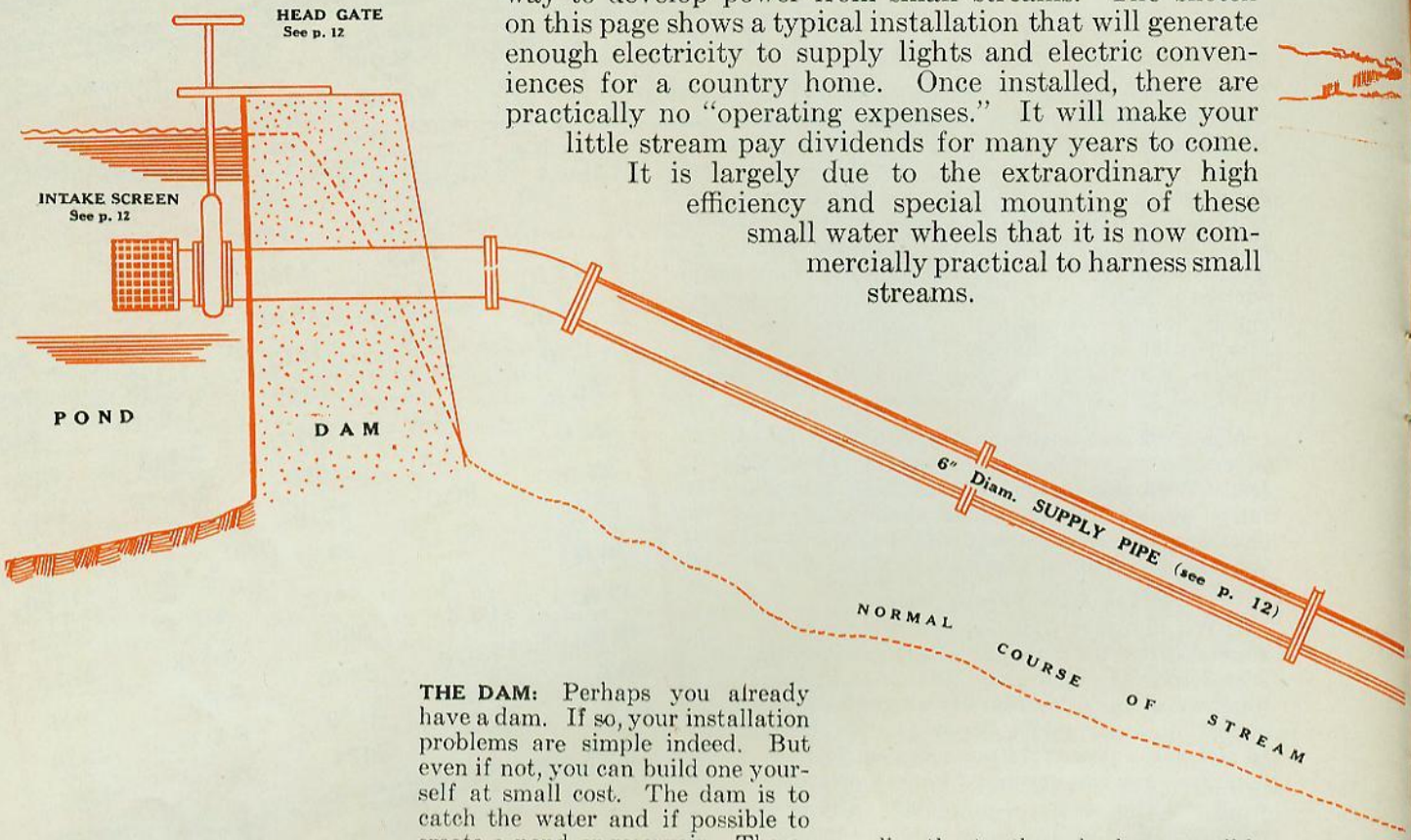


Figure 9 — AC is the head or fall. AB is the distance water must be piped.

BROOK WATER WHEEL Co., ORANGE, MASSACHUSETTS

PUT WATER TO WORK—

The Brook Water Wheel is the simplest and most efficient way to develop power from small streams. The sketch on this page shows a typical installation that will generate enough electricity to supply lights and electric conveniences for a country home. Once installed, there are practically no "operating expenses." It will make your little stream pay dividends for many years to come. It is largely due to the extraordinary high efficiency and special mounting of these small water wheels that it is now commercially practical to harness small streams.



THE DAM: Perhaps you already have a dam. If so, your installation problems are simple indeed. But even if not, you can build one yourself at small cost. The dam is to catch the water and if possible to create a pond or reservoir. Therefore its size will depend somewhat upon your needs for such a reservoir. A large pond will allow you to develop more power for a few hours than you would be able to otherwise.

There are many different types of dams, depending upon the size of the stream, the location and the conditions of use. If you would like information on how to build dams, send for the booklet listed at the left — "Dams and How to Build Them" (25c) or for our more complete book "POWER DEVELOPMENT of SMALL STREAMS" ($2.00).

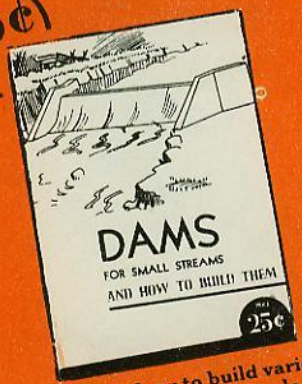
THE SUPPLY PIPE: Usually 6" diameter, the supply pipe brings the water from the pond to the Brook Water Wheel. It can be purchased in standard lengths as listed on page 12, with elbows and bends where needed. Low cost galvanized pipe is often used. If used in a cold climate it is advisable to lay pipe in ground to prevent freezing, unless the water runs in pipe continuously. It is well to lead the water as directly to the wheel as possible to avoid loss of power due to pipe friction. The ends of the pipe are flanged to bolt together. The pipe opening in the pond should be located at least two feet below the surface of the water and should be covered with a close mesh screen of at least 20 times the area of the pipe opening. This keeps out leaves and debris. (See page 12.) While not essential, a head gate at the dam will prove very handy for an emergency shut-off.

THE WHEEL-HOUSE can be as simple or elaborate as you wish. Its purpose is merely to enclose the Brook Hydro-Electric Plant. A shed as small as 5 ft. square will serve. In cold climates, a small, snug wheel-house will prevent freeze-ups even without any other heating equipment than the generator.

Many users will want to make their wheel-house a picturesque hobby shop or rustic cabin. Perhaps you will want to make it a workshop where you can use the power for

How to Build a Dam

25¢



This booklet tells how to build various types of dams from the most simple to large concrete ones. Profusely illustrated with photographs and diagrams. 20 pps. 25c. (Note: this booklet is a reprint of the chapter on "Dams" in the book "Power Development of Small Streams"—$2.00.)

BROOK WATER WHEEL COMPANY,

with a No. 440 Brook Water Wheel

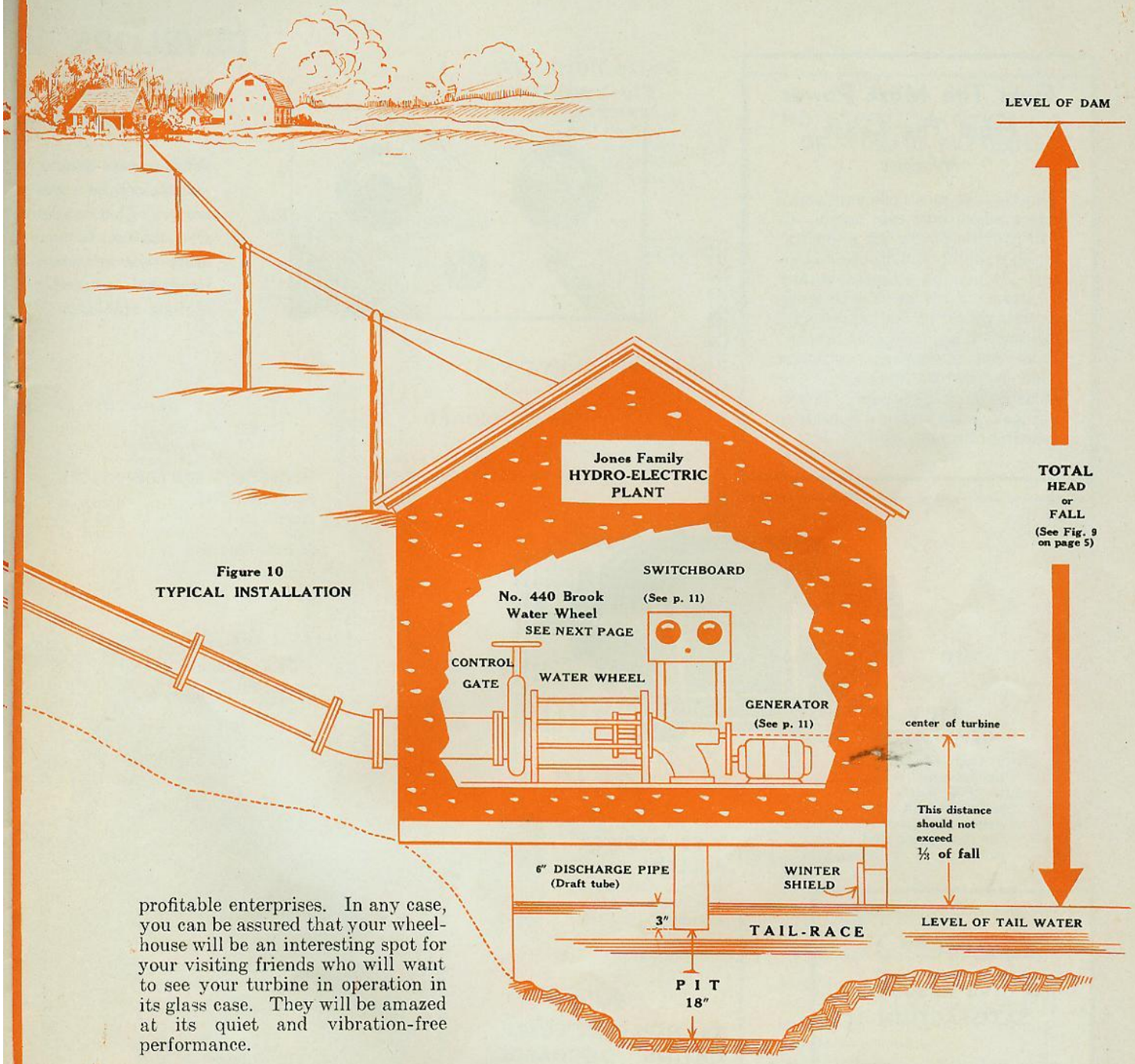


Figure 10
TYPICAL INSTALLATION

profitable enterprises. In any case, you can be assured that your wheel-house will be an interesting spot for your visiting friends who will want to see your turbine in operation in its glass case. They will be amazed at its quiet and vibration-free performance.

THE BROOK WATER WHEEL itself is described in detail in the following pages. It is simple to install and complete instructions are included with each unit. The location of the plant depends upon the nature of the brook, but it is obviously desirable to have it as near the dam as possible to save the expense of piping water.

It is also advisable to have the plant within 1,000 feet of the buildings to be lighted if possible in order to avoid loss in transmission. But it can be further away if necessary.

COMPLETE DIAGRAMS and INSTRUCTIONS for INSTALLING the BROOK WATER WHEEL ARE SUPPLIED WITH EACH UNIT.

ORANGE, MASSACHUSETTS

No. 440 BROOK

DEVELOPS ¼

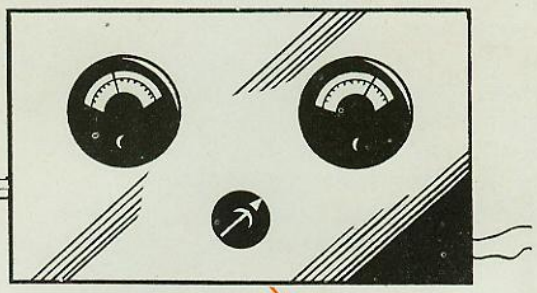
DEPENDING O

(See Table o

Where more power is r wheels can be connecte erator. This arrangeme sive than a larger whe important advantage o when it is scarce by usi highest efficiency.

Gets The Most Power From The Least Water

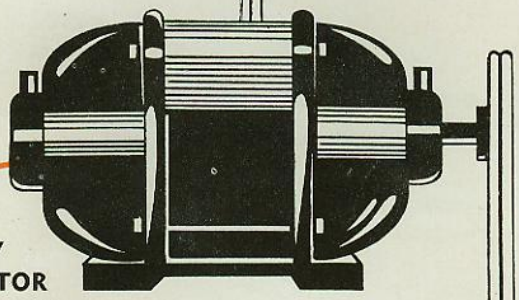
This is the most efficient small water wheel unit ever made. It will provide power for a generator, saw, pump and other machinery. It can be adapted to any location. Runs as smooth as an electric motor at high speed with practically no noise or vibration. It has only one moving part and that is water lubricated — no greasing or oiling needed. It does not leak water and will operate in freezing climates.



11

SWITCHBOARD with Ammeter, Voltmeter and Rheostat. See page 11 for description and prices.

HIGH TEST WATER WHEEL and CASING. Same design as famous Rodney Hunt Hi-Test Turbines that established a record of 93.38% efficiency!



10

110 V GENERATOR available in capacities from 500 Watts to 5000 Watts, depending upon your needs. See page 11 for description and prices.

5

WATER LUBRICATING PIPE — no oiling or greasing needed as single moving part is water lubricated.

6

7

V-BELT POWER PULLEY reduces friction loss to a minimum. More fool-proof than any other drive.

8

TRANSPARENT LUBRICATING DISCHARGE TUBE shows flow of lubricating water.

9

DISCHARGE ELBOW has 6" diam. flange for draft tube connection.

DRAFT TUBE

Guaranteed TO GIVE ABSOLUTE SATISFACTION

when installed in accordance with directions. The equipment may be returned and your money back if equipment and results are not as good or better than we state.

SEE FOLLOWING PAGES FOR P

WATER WHEEL

¼ TO 12 H. P.

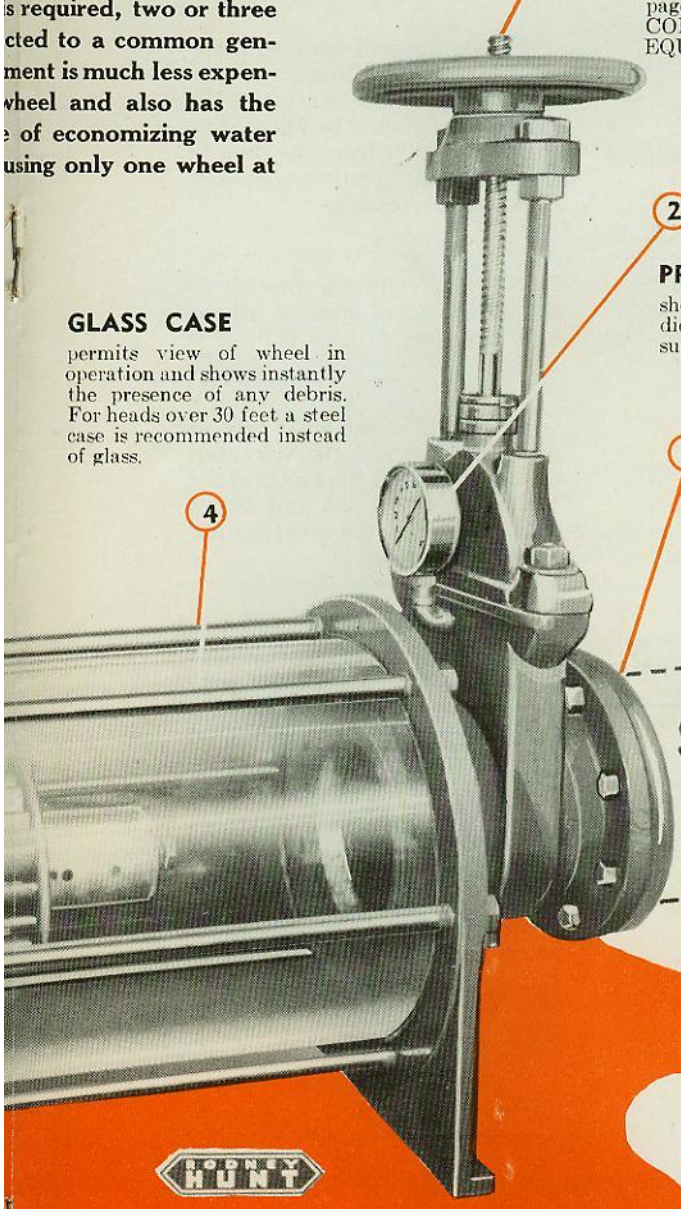
ON THE HEAD

e on Page 5)

is required, two or three cted to a common gen- ment is much less expen- wheel and also has the e of economizing water using only one wheel at

GLASS CASE

permits view of wheel in operation and shows instantly the presence of any debris. For heads over 30 feet a steel case is recommended instead of glass.



1 SELF-INDICATING CONTROL GATE —

No Governor needed as control gate regulates power and voltage. See page 13 for REMOTE CONTROL OPTIONAL EQUIPMENT.

2 PRESSURE GAUGE

shows water pressure and indicates any clogging of supply pipe.

3 6″ INLET CONNECTION —

flanged to bolt to supply pipe. By means of an ELBOW, connection can be made with SUPPLY PIPE at any angle.

4 SUPPLY PIPE →

TO DAM

6″ diam. Pipe, see page 12 for standard lengths and description of supply pipe.

PATENTS PENDING

NO EXPENSIVE GOVERNOR OR STORAGE BATTERIES NEEDED

One of the many features of the No. 440 Brook Water Wheel is that neither a governor nor storage batteries are required to obtain satisfactory electric power. The simple manually operated control gate shown at left regulates the power and hence the voltage. By the remote control equipment shown on page 13, this gate can be opened and closed from a distance. A simple 3-way switch makes it possible to use excess electricity generated to heat water and operate small room heaters. Thus — no power is wasted, and no governor is needed. Just "switch" the current off from one use to another as needed.

PRICE COMPLETE

As shown except without generator and switchboard. Glass or steel case. Price includes 18″ V-Belt drive ready to connect to generator.

$335.00 F. O. B. ORANGE

SEE PAGE 11 for PRICES of GENERATOR and SWITCHBOARD

FIGURE No. 11

PIPING AND OTHER ACCESSORIES.

DIMENSIONS *and* TYPICAL SETTINGS OF UNIT

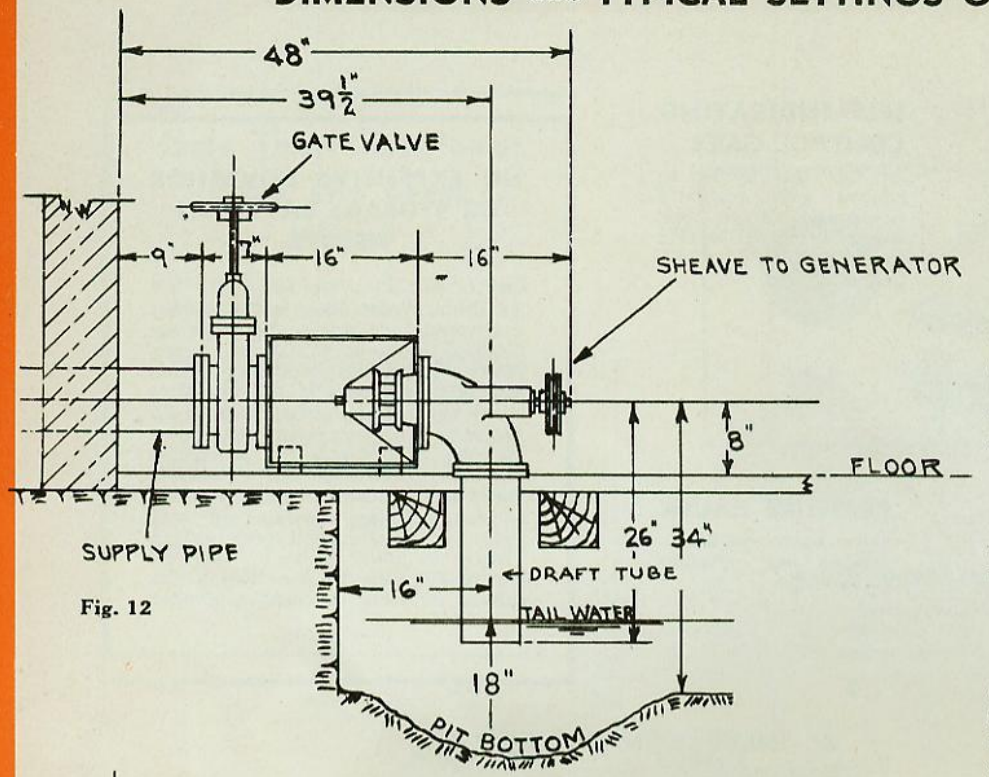


Fig. 12

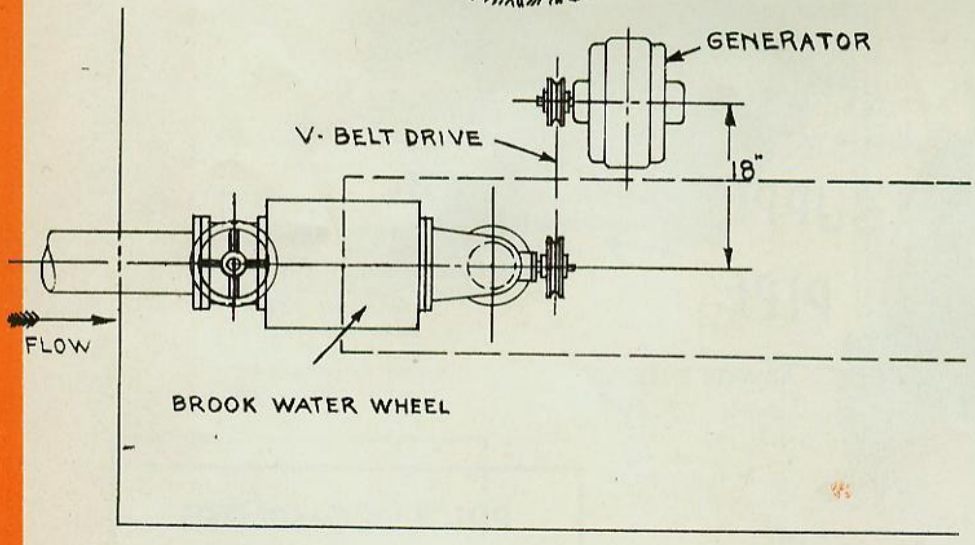


Fig. 13

These diagrams show the dimensions of the No. 440 Brook Water Wheel and typical settings for single, double, and triple units.

•

The setting will vary with the location and conditions. In general, however, the location of the supply pipe should be planned to bring the water from the dam to the turbine as directly as possible, avoiding sharp angles.

•

The pipe connects directly to the gate control opening on the unit as shown.

•

The length of the draft tube or discharge pipe will also vary, but the distance from the center of the turbine case to the tail water should never exceed ⅓ of the total head.

•

If enough water is available, two or three units can be connected to a common supply pipe as shown below. In this case, a supply pipe larger than 6″ should be used as shown below.

•

OUR ENGINEERING STAFF will help you plan your setting if you will supply data regarding your power site. See Questionnaire. A sketch of location and snapshots will help us in making the plan.

HOW ADDITIONAL UNITS CAN BE SET UP TO DOUBLE *or* TRIPLE POWER

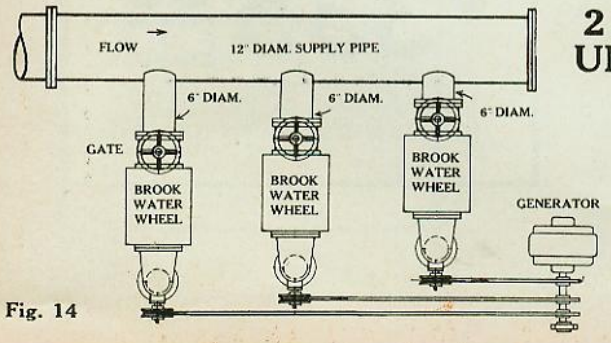


Fig. 14

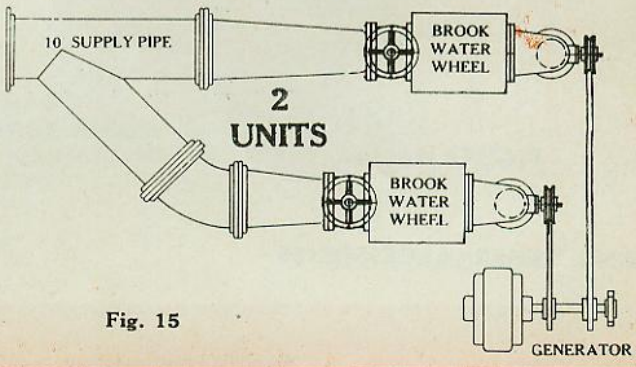


Fig. 15

DIRECT CURRENT GENERATORS

500 to 3000 WATTS CAPACITY

Equipped with Sheave Pulleys for V-Belt Drive

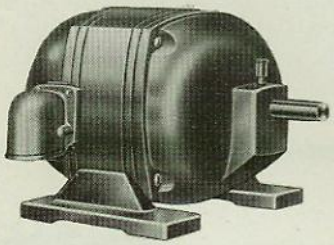


Figure 16

Direct current compound generators are recommended for the average installation, although alternating current generators can be furnished if you wish. However, they require in some cases 10 to 20 per cent more power to operate. Generators purchased from us will be equipped with sheave pulleys for V-Belt drive to water wheel unit. It is always desirable to select a generator of the capacity of the water wheel as power will be wasted if generator is too large. 110 to 115 volts are most common for average household devices. 32 Volt Generators can be furnished if desired.

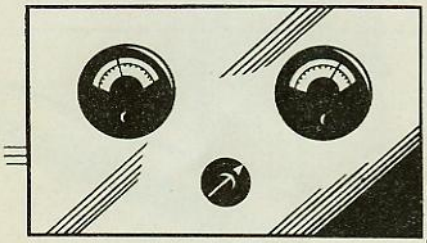
Direct Current Compound Wound Generators

1750 – 1800 R.P.M. — 110 – 125 Volts

Watts	*Prices*	*Watts*	*Prices*
350	$43.00	1500	$85.00
500	52.00	2000	130.00
750	63.00	3000	165.00
1000	71.00		

Prices f. o. b. Orange, Mass. Quotation on AC Generators on request.

GENERATOR SWITCHBOARD



Regularly equipped with Voltmeter, Ammeter, and Rheostat. Mounted on board ready to be fastened to a wall or frame. Price complete, f. o. b. Orange, Mass., $32.00. Fused safety switches or cut-outs may be added at extra cost if desired.

Fig. 18

WIRING DIAGRAM

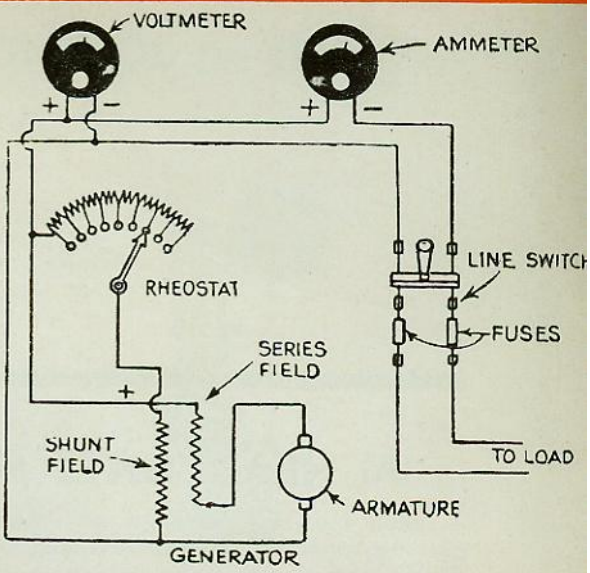


Fig. 17

FOR HOUSE WIRING, EQUIPMENT and APPLIANCES — CONSULT LOCAL ELECTRICIAN

For help in planning your house wiring, we suggest that you get in touch with your local electrician. If you are planning to do it yourself, there are several good books available on the subject which we will be glad to recommend on request.

MAKE MONEY with Your Own Electric Power

With your own Brook Water Wheel, you can use the power for profitable hobbies and craft industries. You can sharpen lawn-mowers, saws and tools of all kinds — also charge radio and lighting batteries. You can run complete workshop eqiupment — bench saws, drill presses, lathes, etc. You can saw wood. The power to drive these machines will cost you practically nothing.

ELECTRICITY Is a Willing Servant on the Farm or at the Camp

In addition to providing home conveniences, Brook Water Wheels can operate many labor and time-saving machines on the farm. They will grind feed, churn butter, hoist hay, kill flies, electrify fences, sharpen tools, saw wood, shell corn, separate cream, cool milk, heat water, and do a score of other jobs. Why not put water to work?

BROOK WATER WHEEL COMPANY A DIVISION OF RODNEY HUNT MACHINE CO. **Orange, Mass., U.S.A.**

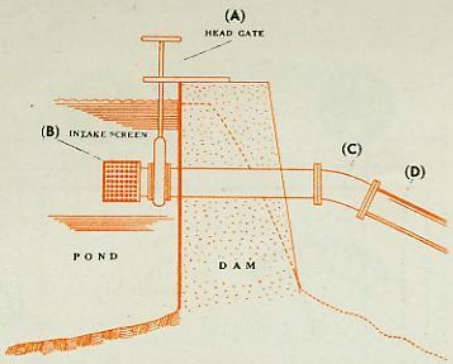


Fig. 19

EQUIPMENT *for* CONTROLLING

WATER SUPPLY

On this page we list the equipment you will need in bringing your water from the dam to the Brook Water Wheel. The diagram at the left shows roughly the arrangement at the dam — consisting of an intake screen (b), a head gate (a) (which is advisable but not absolutely essential), and the supply pipe itself (d) with connecting elbow (c).

(A) HEAD GATE *for* DAM

A simple and inexpensive but very effective low pressure control gate for small water power developments. Easy to install. Its flange bolts onto end of supply pipe. Rising gate shaft shows degree of gate opening. Available to fit 6 inch, 8 inch, 10 inch, and 12 inch pipes. Prices (f. o. b. Orange). For 6 inch pipe — $45.00. For 8 inch pipe — $62.00. For 10 inch pipe — $77.00. For 12 inch pipe — $95.00. Heavier gates recommended for heads above 40 feet.

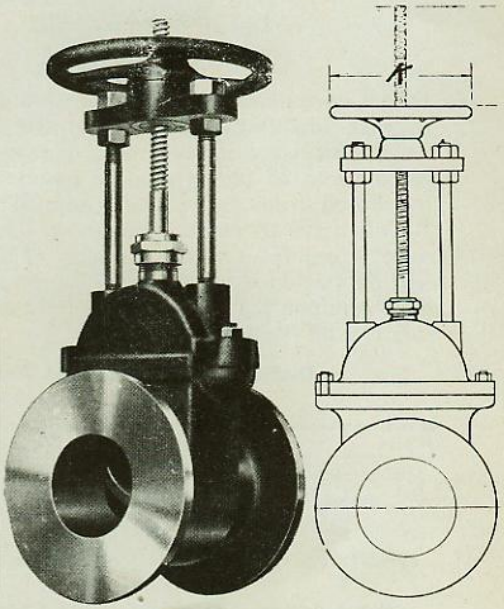


Fig. 20

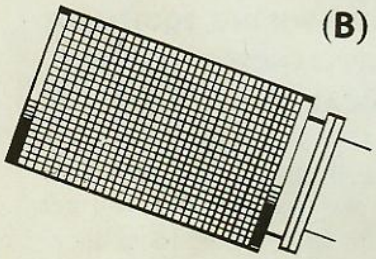


Fig. 21

(B) INTAKE SCREEN

An inexpensive method of keeping out leaves, sticks, and other debris in the pond from the supply pipe. It consists of a drum with a close mesh wire screen which bolts onto the flanged end of the supply pipe. The openings in the screen have an area several times that of the pipe opening. Prices on application.

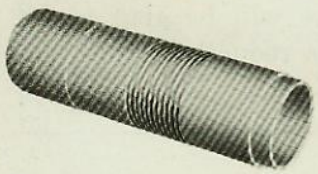


Fig. 22

Steel Banded
WOOD PIPE

(D) SUPPLY PIPE

Available in either light weight galvanized or steel banded wood pipe. The latter is preferable for underground conduits. There is also less loss of head in wood pipe and it can be curved for long bends. The ends of each section are flanged to bolt together. Galvanized pipe comes in standard 20 foot lengths and the wood pipe in standard 12 foot lengths. Diameters 6 inches, 8 inches, 10 inches and 12 inches. Prices on application.

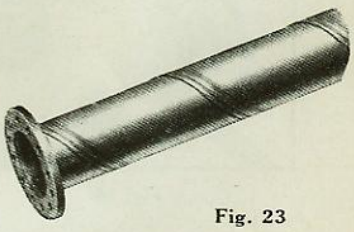


Fig. 23

Light Weight
GALVANIZED

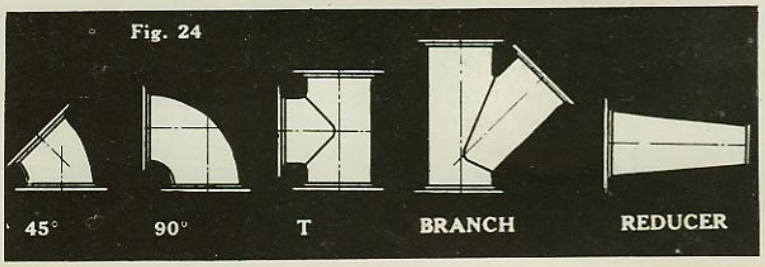


Fig. 24

(C) ELBOWS AND FITTINGS

Galvanized elbows and fittings as shown at left, are available to fit 6 inch, 8 inch, 10 inch, and 12 inch pipe. Flanged to bolt onto supply pipe. Prices on application.

Optional ELECTRIC REMOTE CONTROL *for* GATE

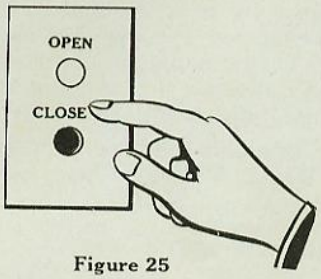


Figure 25

Remote Control Switch can open and close control gate on water wheel from distant point.

This Arrangement Allows the Voltage to Be Kept Constant from a Remote Control Point — Eliminating the Need for an Expensive Governor.

If you wish, you can open and close the control gate to your Brook Water Wheel from your home, some distance from wheel house. With this "Remote Control" equipment, the regular manually-operated control wheel is replaced with a gear connected to a motor. This motor is controlled by a switch in your home. If you want more power and voltage, just press a button and the motor opens the gate. When the dial indicates the amount of voltage desired, you release the button and the motor stops. Likewise, by pressing the other button, you can reverse the motor and close the gate any amount desired. If you would like this "remote control" feature on your installation, we will be glad to quote you on the additional cost.

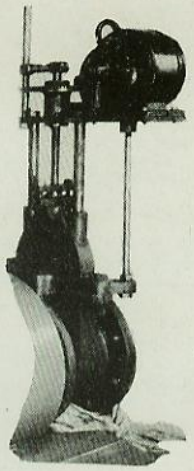


Figure 26

Motor and gear replace manually operated control.

Optional Water Control Equipment

TRASH RACK
and TRASH RAKE

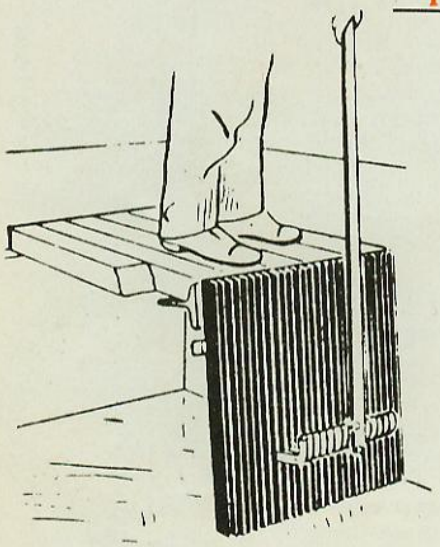


Fig. 27

Cleaning trash rack with rake.

In some cases it is advisable to provide the entrance to your supply pipe with a more substantial and more easily cleaned protection than that afforded by the Intake Screen shown on page 12. We can supply you with durable metal trash racks for this purpose. They are available in any dimensions required.

We also furnish unbreakable steel rakes for cleaning trash racks.

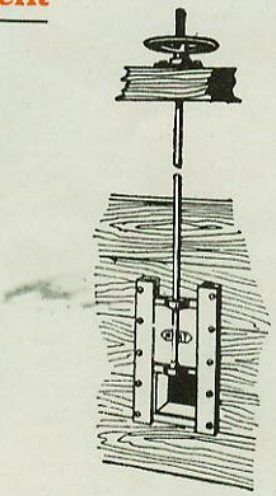


Fig. 28

HEAD GATES

In addition to the metal head gates shown on page 12, we supply wood head gates of any size to fit your needs. The illustration at the right shows a small metal head gate with a hand wheel and threaded screw hoist. A wood stem without hoist can be used for low heads.

also . . . Metal Gates, Hoists and Other Equipment Available

The Brook Water Wheel Company is a division of the Rodney Hunt Machine Company of Orange, Massachusetts, makers of large water power equipment "from dam to tail-race." This concern has pioneered in the development of water wheels and water control equipment for over 70 years.

We are therefore prepared to make practical recommendations and quote you on any type of water power equipment you may need — including metal gates, gate hoists, and other equipment. Also on larger turbines from 10 H.P. up. Catalogs on request.

WIRING DIAGRAM

Showing use of 3-way switch control to avoid need of expensive governor.

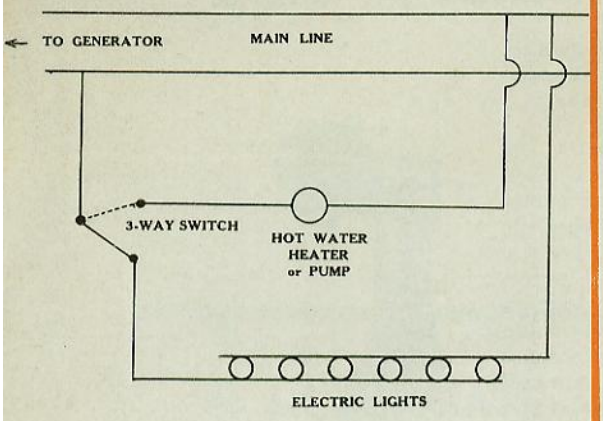


Fig. 29

This diagram shows how simply and easily you can use a 3-way switch to control the load on your generator. Any appliances of similar wattages can be substituted for those shown.

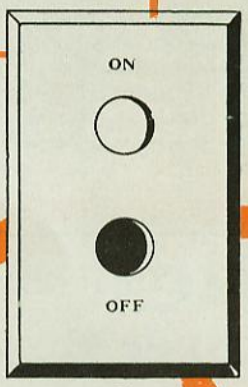


Fig. 30

Why No Governor Is Needed!

The manual control gate usually proves ample to regulate the power and voltage of the Brook Water Wheels. No expensive governor is needed. If it is not convenient to use the control gate, it is simply necessary to provide a constant load on your generator. This is readily accomplished by using one or more 3-way switches as shown in the wiring diagram at the left.

Suppose you have an appliance (or group of lights) that use 500 watts. When they are not being used, the same 500 watts can be instantly switched to a water heater, pump, or glow air heater and thus you can keep the load constant. Any number of such 3-way switch controls can be used, depending upon your needs.

The water costs you nothing, and there is no fuel or lubricating expense with your Brook Water Wheel. Many customers just leave their lights burning continuously. Of course, if it is a dry season and you want to save water, you can close the control gate for periods during the day.

In some cases it is desirable to charge storage batteries with the surplus power. Each customer can adapt the power from his Brook Water Wheel to fit his particular needs.

Use Surplus Power for

ELECTRIC WATER HEATER

During the day or at night when you do not need lights, you can still keep your water wheel at work providing you with hot water. A three-way switch turns off the lights and turns on the water heater. The model shown at right is available in several sizes from 2 gallons (1150 watts) and 5 gallons (1250 watts) up to 30 gallons depending upon your needs and available power.

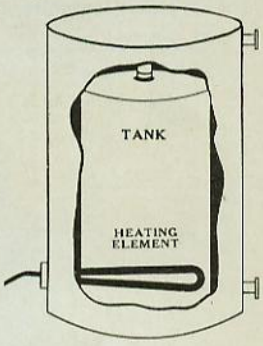


Fig. 31

WATER PUMPS

Running water for the kitchen and the bath-room is one of the great blessings which your Brook Water Wheel can provide. There are many different pumps on the market of varying sizes and capacities. If you wish, we will be glad to quote you on your requirements, either with or without motor, and to recommend a setting that will meet your particular needs.

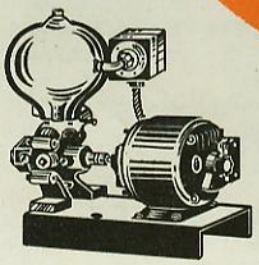


Fig. 33

GLOW AIR HEATERS

Another way in which you can use surplus power to keep the generator load constant is to switch onto a glow type open heater such as is illustrated. These can be obtained in various wattages from 100 up. In freezing weather you can get a lot of comfort from one or more of these heaters without it costing a cent for power.

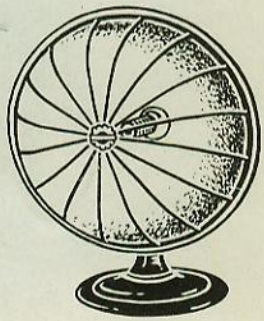


Fig. 32

EXTENSION COUNTERSHAFT TO SAW, LATHE, etc.

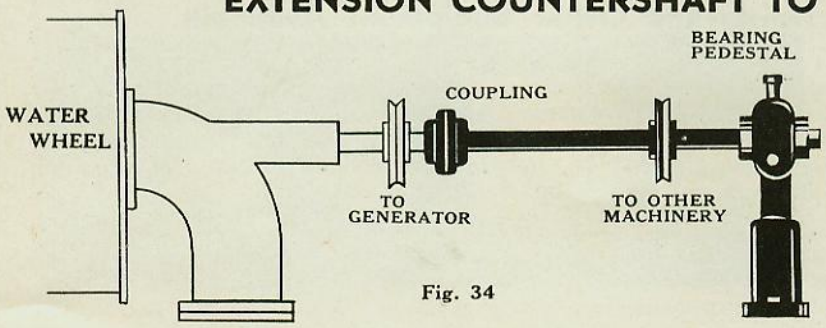
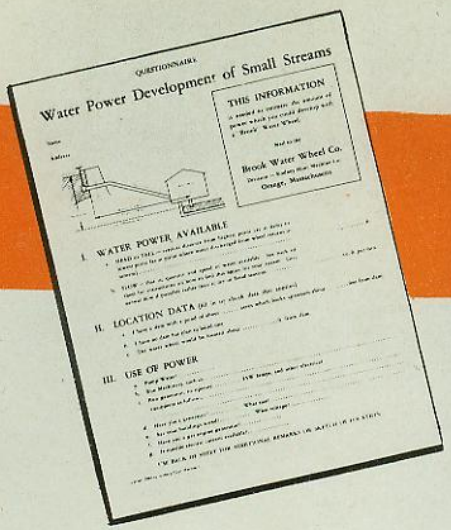


Fig. 34

With this extension countershaft you can utilize the power from your Brook Water Wheel for the direct drive of saws, lathes, grinding wheels, drill presses and other machinery. Coupling connects extension shaft to end of water wheel shaft. Bearing pedestal with anti-friction bearings and V-belt drive pulley. Ask for quotation, specifying size and length of shaft, size of pulley and height of bearing pedestal.

Let Us Help You Plan
YOUR INSTALLATION


QUESTIONNAIRE

Water Power Development of Small Streams

THIS INFORMATION

Brook Water Wheel Co.
Orange, Massachusetts

I. WATER POWER AVAILABLE

II. LOCATION DATA

III. USE OF POWER

Fig. 35

For Complete Recommendations and Cost Estimate —
FILL OUT QUESTIONNAIRE

There is nothing complicated about the installation of one of these No. 440 Brook Water Wheels. A man can layout, install and operate this unit without special knowledge or training. However, because each brook location is different and conditions of operation vary greatly, we suggest that you let our trained hydraulic engineers check your installation plans by mail before you go ahead. There is no charge for this service. Nor do you have to place an order to get the counsel of these engineers who are leaders in this field. Just fill out our QUESTIONNAIRE No. 1040 and mail it in. We will make recommendations as to type of equipment, estimate power possible, and — if you send us complete data and sketch of your location — will recommend a setting for your wheel. If you have or can take snapshots showing stream at dam and at wheel-house location it will help us out. You can get a complete estimate of the cost of your installation before you have spent a penny.

THIS HOME HAS ELECTRIC LIGHTS *and* MODERN CONVENIENCES — *with Power from Two Brook Water Wheels*

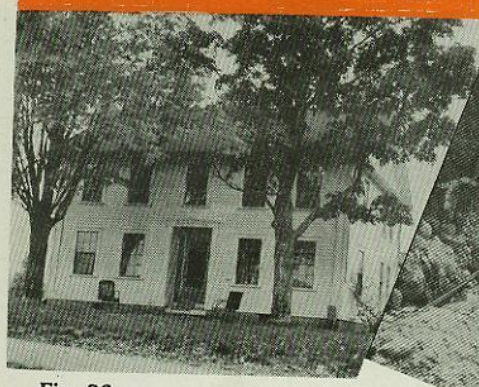


Fig. 36

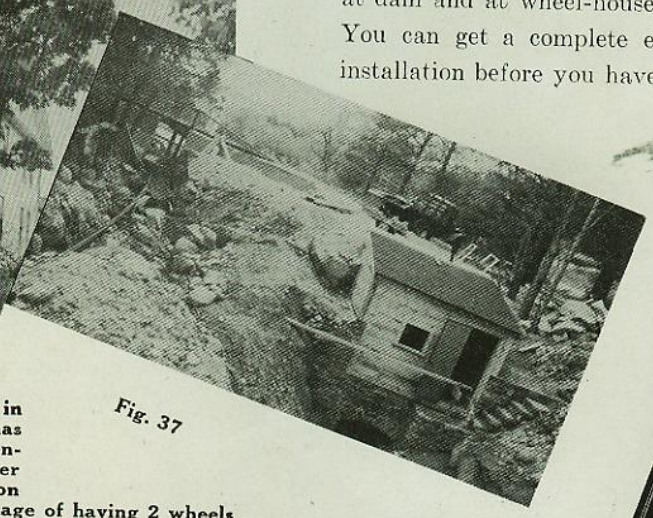


Fig. 37

The home of Mr. R. I. Harry in Greenville, N. H. (shown above) has electric lights and modern conveniences thanks to two Brook Water Wheels connected to a common 1500-watt generator. The advantage of having 2 wheels is that in dry seasons Mr. Harry can close down one wheel and run the other at full gate to get the greatest efficiency from the least water. The photo at right shows the Harry dam and wheel-house under construction. An underground cable carries the electricity to the Harry homestead nearby.

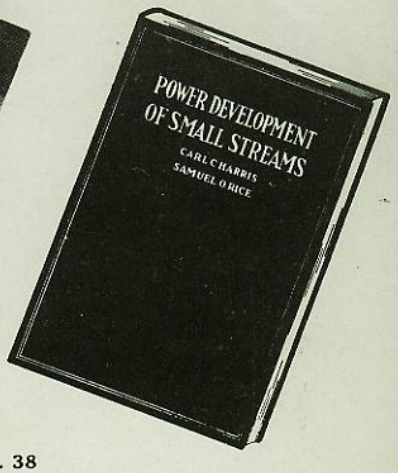


Fig. 38

The Only Complete Book Ever Written on Harnessing Power of Small Streams

A 127-page, profusely illustrated book — "Power Development of Small Streams" which will answer all the questions that arise regarding small Water Power equipment. Price, $2.00.

BROOK WATER WHEEL COMPANY
A DIVISION OF RODNEY HUNT MACHINE COMPANY
Orange, Massachusetts, U. S. A.

Valley Litho Inc., Holyoke, Mass.

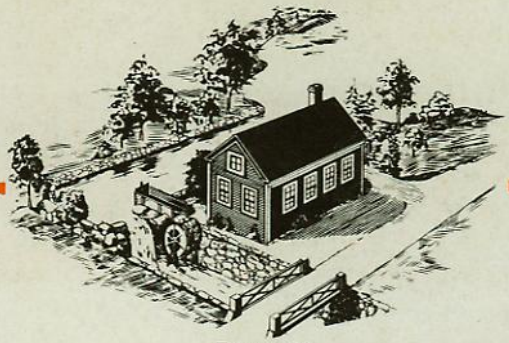


Figure 39

OVERSHOT WHEELS

A complete line of overshot rim leverage wheels that are ideal for small streams with low heads. They require very little water to operate and the power can be used to run small machines. An overshot wheel with its musical pitter-patter has a charming and scenic value that is also an important factor to consider.

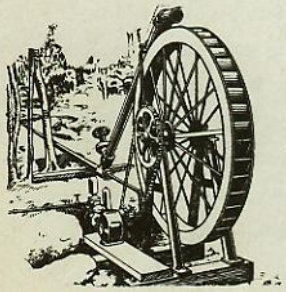


Figure 40

PUMP WHEELS

These wheels are very efficient for pumping water and often are used to replace rams because of their more dependable service and quieter operation. While more expensive than rams, they add an ornamental attraction near a homestead. They operate continuously and in freezing climates can be enclosed in a small building. Standard sizes and capacity (in gallons per day elevated to 50 feet):

4 ft. diameter — 800 gallons
5 ft. diameter — 1000 gallons
6 ft. diameter — 1200 gallons

Pioneers in the
DEVELOPMENT OF SMALL WATER POWER EQUIPMENT
★
BROOK WATER WHEEL CO.
A DIVISION OF THE RODNEY HUNT MACHINE CO.
ORANGE, MASS., U.S.A.

Figure 41

UNDERSHOT WHEELS

These picturesque little wheels can be installed where there is a very low head and small amount of water available. They are very attractive and fascinating to watch in operation. Their chief practical use is for pumping of water. Available in a complete range of prices and styles to fit all needs.

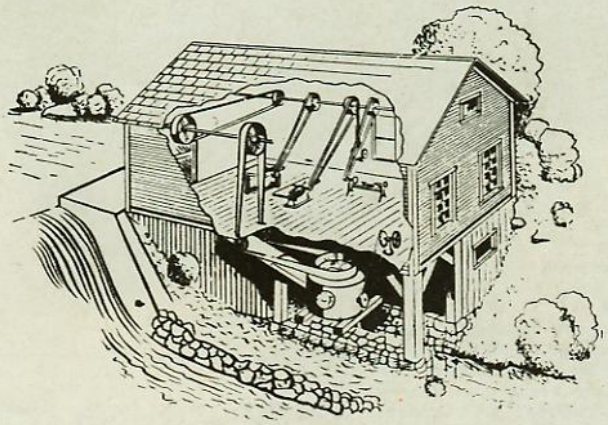


Figure 42

LARGE TURBINES

For old mill sites where more than 10 horse power is available, we recommend a large turbine and can supply them from 12 inch to 72 inch diameters. For high heads, horizontal wheels are usually installed in order to belt directly to the shop shafting. For low heads, the turbine is usually set with the shaft vertical and either a bevelled gear or a quarter turn belt (as illustrated) is used to drive the shop shafting. Either steel or wood casing and supply pipe can be furnished.

Printed in U.S.A.

No. 641 Brook Water Wheel
(PATENTED)

TO FIND POWER
Which Your Stream Will Develop with a No. 641 Brook Water Wheel

(Approximate because of varying installation conditions)

If Your HEAD (Fall) is Feet Drop	You'll Need a FLOW of WATER cu. ft. per Min. †	Which will give a Turbine Speed of R. P. M.	To produce this amt. of POWER H. P.	And this amt. of ELECTRICITY Watts*
5 ft.	80.40	683	0.594	390
7 ft.	94.80	806	0.984	610
10 ft.	113.40	966	1.670	1040
12 ft.	124.20	1056	2.21	1368
15 ft.	138.00	1182	3.08	1910
17 ft.	148.20	1258	3.72	2310
20 ft.	160.80	1367	4.75	2946
25 ft.	179.40	1528	6.61	4120
30 ft.	196.80	1673	8.72	5420
40 ft.	227.40	1932	13.40	8420
60 ft.	278.40	2364	24.60	15300

*Based on assumed generator efficiency of 70% for small DC Generators. Reduce 10–15% for lower efficiency of small AC Generators. †There are 7½ gallons in a cubic foot.

For those who need more power than a No. 440 Brook Water Wheel can produce, the Brook Water Wheel Company has developed a new, slightly larger Brook Water Wheel. Known as the No. 641 the new, patented wheel is in every way like the No. 440 Brook Water Wheel except that it is slightly larger thruout. With a 6″ runner this wheel has the mechanical simplicity of only one moving part, insuring foolproof, continued operation. This slightly larger No. 641 Brook Water Wheel has TWICE THE POWER (Compare power and speed tables) of the smaller No. 440 wheel.

Both the No. 440 and the No. 641 Brook Water Wheels have these important advantages due to their unique design. (1) No cost to operate. (2) Uses much less water. (3) Much lower cost due to simple patented construction. (4) Elimination of expensive governor equipment. (5) Easy to install.

Combining one or more No. 641 and No. 440 Brook Water Wheels provides for throwing off the belt on one of the wheels when not in use and thereby saving water at all times.

We also furnish small turbines when more power is required.

SEE BACK OF THIS SHEET FOR INSTALLATION DATA
(Also See Catalog No. W-3 for general information.)

FOR MORE POWER

You can Double or Triple these H. P. and Watt figures by installing 2 or 3 No. 641 Brook Water Wheels. In this case, you will need 2 or 3 times as much flow as given in the table. See page 10 of Catalog No. W-3 for settings with 2 and 3 units. We recommend tandem setting where possible.

PATENTED

PRICE
Complete as shown with 18″ V-belt drive ready to connect to generator.

$490.00

BROOK WATER WHEEL CO.
ORANGE, MASS., U.S.A.

A Division of the Rodney Hunt Machine Co.

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DIMENSIONS and TYPICAL SETTING of No. 641 BROOK WATER WHEEL

The setting will vary with the location, but the water should be brought as directly from the dam to the turbine as possible, avoiding sharp angles. Avoid high, costly dams. A supply pipe from a 2 or 3 foot dam is usually ample if pipe can run down hill to obtain 10 foot or more of fall. The only advantage of a high dam and large pond storage is to develop greater power for short periods.

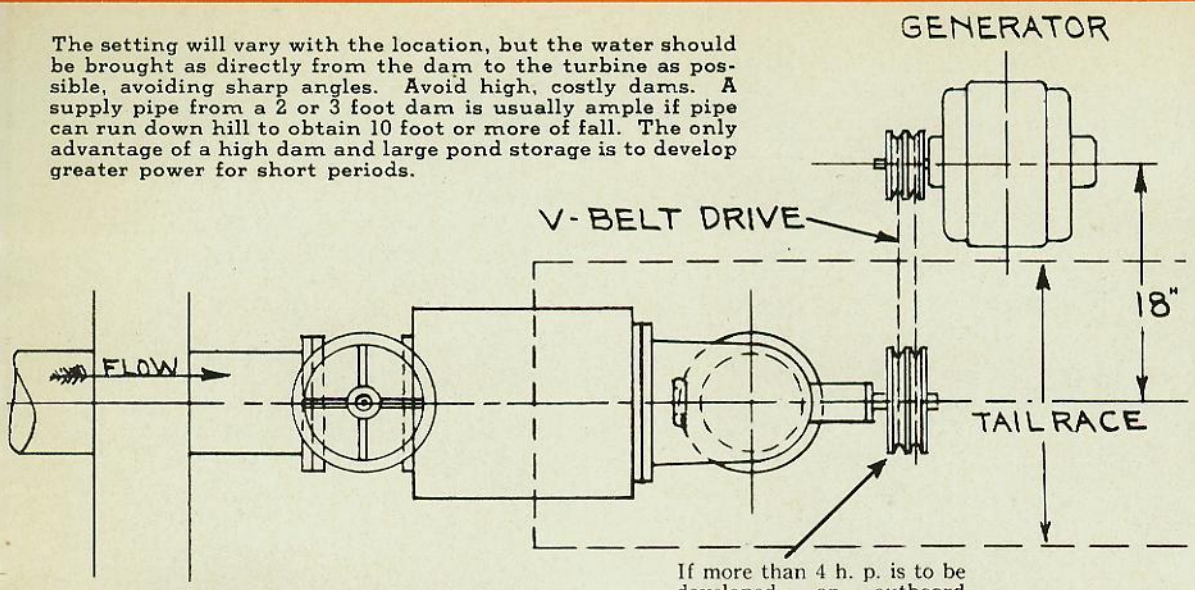

Fig. 2 SEE PAGE 10 of Catalog No. W-3 For Settings for 2 or 3 Units

WATTS.....?
SPEED.....?
VOLTS.....?

Note: Generator should not be excessively oversize. One h. p. = 746 watts. At an assumed efficiency of 70%, this would give capacity of 522 watts per h. p. Generator should not exceed 10% estimated total capacity of the unit.

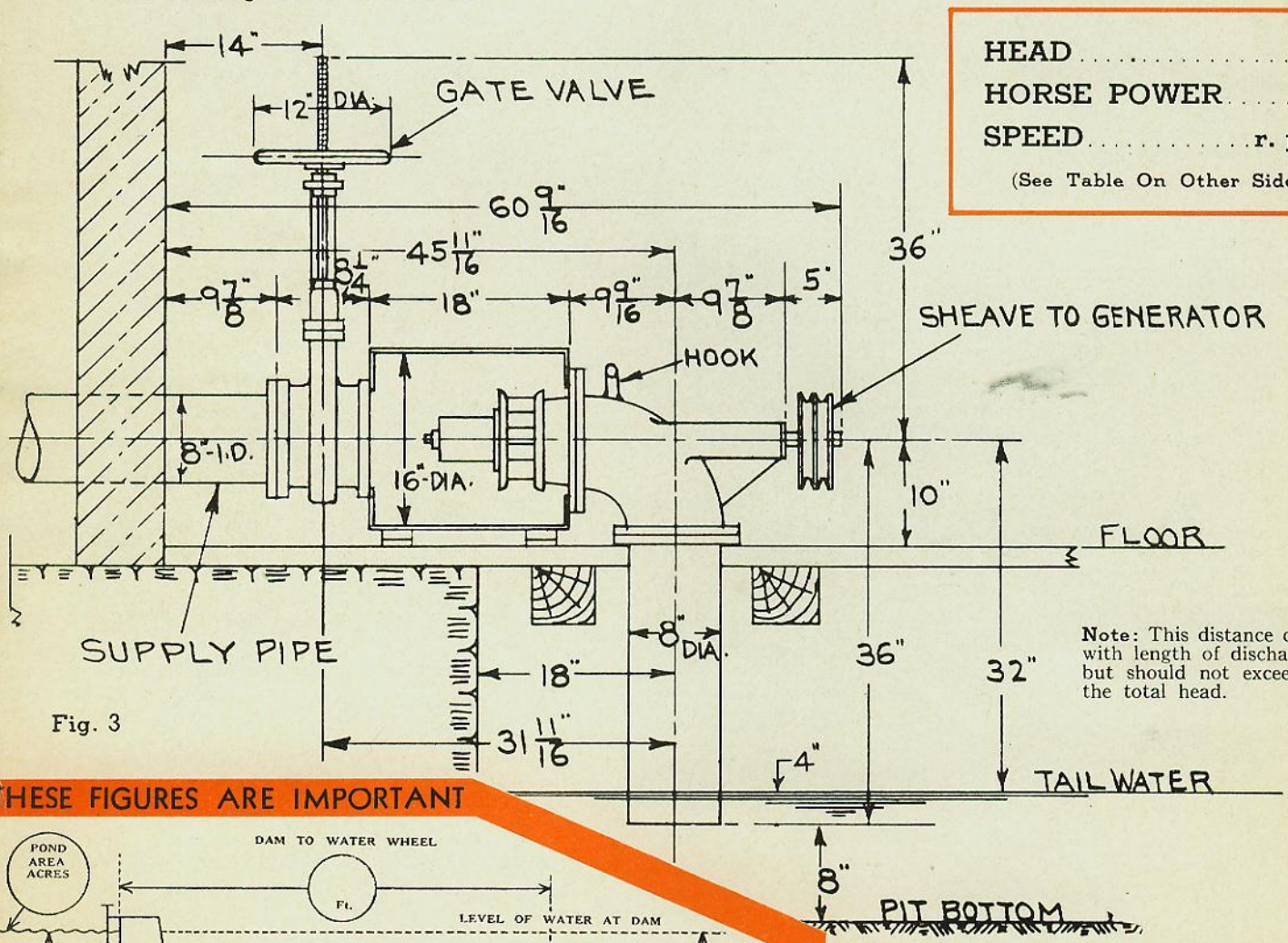

Fig. 3

HEAD.....ft.
HORSE POWER.....h. p.
SPEED.....r. p. m.
(See Table On Other Side)

Note: This distance can vary with length of discharge pipe but should not exceed ⅛ of the total head.

THESE FIGURES ARE IMPORTANT

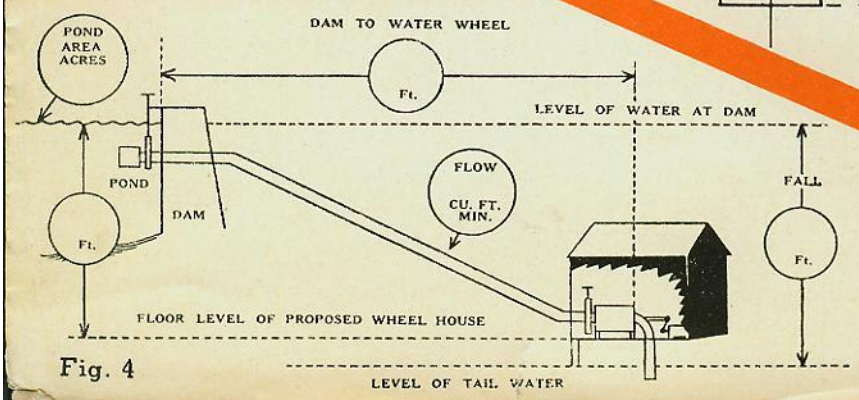

Fig. 4

OUR ENGINEERING STAFF will be glad to help you plan your setting if you will supply data indicated at left. A sketch of location and snapshots will help us in making the plan.